

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date:

Region: Winston-Salem Regional Office
County: Randolph
NC Facility ID: 7600336
Inspector's Name: Robert Barker
Date of Last Inspection: 03/25/2020
Compliance Code: B / Violation - emissions

<p align="center">Facility Data</p> <p>Applicant (Facility's Name): Waste Management of Carolinas, Inc. - Great Oak Landfill</p> <p>Facility Address: Waste Management of Carolinas, Inc. - Great Oak Landfill 3597 Old Cedar Falls Road Randleman, NC 27317</p> <p>SIC: 4953 / Refuse Systems NAICS: 562212 / Solid Waste Landfill</p> <p>Facility Classification: Before: Title V After: Fee Classification: Before: Title V After:</p>				<p align="center">Permit Applicability (this application only)</p> <p>SIP: 02D .0510, .0516, .0521, .0524, .1110, .1806, .02Q .0504 NSPS: 40 CFR 60 Subparts OOO, XXX NESHAP: 40 CFR 61 Subpart M PSD: NA PSD Avoidance: NA NC Toxics: NA 112(r): NA Other: NA</p>																											
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<p>Review Engineer: Eric Crump</p> <p>Review Engineer's Signature: _____ Date: _____</p>				<p align="center">Comments / Recommendations:</p> <p>Issue 10446/T04 Permit Issue Date: Permit Expiration Date:</p>																											

1. Purpose of Application

Waste Management of Carolinas, Inc. - Great Oak Landfill (hereafter referred to as Great Oak Landfill) is an active municipal solid waste (MSW) landfill, located in Randleman, Randolph County, North Carolina. The facility operates under Title V Permit No. 10446T03 with an expiration date of February 28, 2021. Great Oak Landfill has submitted permit application No. 7600336.20A for renewal of their facility's air quality permit. This application also serves as Step 2 of a two-step significant modification to install a voluntary landfill gas collection and control system (GCCS), along with a 3,500 standard cubic feet per minute (scfm) landfill gas (LFG)-fired flare.

The renewal application was received on May 19, 2020, or at least six months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

2. Facility Description

The Great Oak Landfill, sited on a 667-acre parcel owned by Randolph County, is operated by Waste Management of Carolinas, Inc (Waste Management). The initial solid waste permit-to-construct (Permit No. 7607) was issued to the landfill in 2016. The landfill began accepting waste on January 9, 2017, and is still in its early stages of operations, with two cells constructed -1A and 1B. The eventual designed buildout will have eight cells, numbered 1A, 1B, 2, 3, 4, 5, 6 and 7. The landfill accepts municipal solid waste and has also allowed industrial and construction and demolition waste, including asbestos-containing wastes.

The 30-year design capacity of the landfill is approximately 37,789,967 cubic yards (yd³) or 28.89 million cubic meters (m³) with an estimated design disposal mass of approximately 28.3 million short tons or 25.7 million megagrams (Mg). Its 10-year design capacity is approximately 7,171,974 yd³ or 5.48 million m³. The 10-year estimated design disposal mass of the landfill is approximately 5.378 million short tons or 4.88 million Mg.

3. Application Chronology

March 1, 2016	Division of Air Quality (DAQ) issues Permit No. 10446T00 to Great Oak Landfill as a greenfield facility permit.
March 17, 2016	DAQ issues Permit No. 10446T01 to Great Oak Landfill as an administrative amendment to correct a rule citation.
January 26, 2018	DAQ receives 502(b)(10) notification from Great Oak Landfill for the addition of two temporary passive solar activated flares to be mounted on leachate risers to reduce potential odors.
January 30, 2018	DAQ sends email to Great Oak Landfill stating the addition of the two temporary flares (which had been assigned Applicability Determination No. 3203) do not require a permit modification or 502(b)(10) notification, and that the flares are insignificant sources. These sources should be included in the next permit modification or renewal.
March 20, 2018	Robert Barker, Winston-Salem Regional Office (WSRO) conducts facility compliance inspection. Facility appeared to be operating in compliance with all permit requirements.
April 24, 2018	DAQ issues Permit No. 10446T02 to Great Oak Landfill.

December 19, 2019	DAQ receives Application No. 7600336.19A, which is Step 1 of a two-step significant modification to install a voluntary landfill gas collection and control system and a 3,500 scfm landfill gas-fired flare.
December 30, 2019	DAQ receives dispersion modeling analysis for Great Oak Landfill in support of Application No. 7600336.19A. The application triggered modeling requirements to evaluate those toxics whose rates are expected to exceed the levels outlined in 15A NCAC 02Q .0700.
February 10, 2020	Nancy Jones, Air Quality Analysis Branch issues memo to Robert Barker and Davis Murphy, WSRO documenting review of modeling analysis. The modeling adequately demonstrates compliance, on a source-by-source basis, for all toxics modeled.
March 25, 2020	Robert Barker, WSRO, conducted a targeted compliance inspection at the facility. The facility was found to be in violation of 15A NCAC 2Q .0501 "Requirement for a Permit" for installing a rock crusher before obtaining a construction and operation permit.
March 29, 2020	DAQ receives Application No. 7600336.19A for permit renewal, and Step Two of a two-step significant modification to install a voluntary landfill gas collection and control system and a 3,500 scfm landfill gas-fired flare.
April 1, 2020	WSRO issues a Notice of Violation (NOV) to Great Oak Landfill for operating the rock crusher without a permit.
April 28, 2020	DAQ issues Permit No. 10446T03 to Great Oak Landfill.
April 29, 2020	WSRO issues addendum to April 1, 2020 NOV for failure to conduct a performance test on the rock crusher as required by 40 CFR Part 60, Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants."
xxx	DAQ sends draft permit to Great Oak Landfill and WSRO for review and comment.
xxx	DAQ receives comments on draft permit from Great Oak Landfill.
xxx	DAQ receives comments on draft permit from WSRO.
xxx	Permit renewal notice published, 30-day public notice and comment period begins, and 45-day EPA comment period begins.
xxx	30-day public notice and comment period ends.
xxx	45-day EPA comment period ends.

4. Permit Modifications and Title V Equipment Editor (TVEE) Discussion

The following table summarizes changes to the Great Oak Landfill permit resulting from the permit renewal:

Page No.	Section	Description of Changes
Cover and throughout	---	Updated all dates and permit revision numbers
4-9	2.1 A.3.b	Replaced paragraph references with specific section number references
5	2.1 A.3.b.ii.(B)(2)(a)	Changed paragraph (d) to paragraph (c)
	2.1 A.3.b.ii.(B)(4)	Updated to reflect current provisions in 40 CFR 60, Subpart XXX
6	2.1 A.3.c	Changed “both equations” to “the equation”
7	2.1 A.3.g	Inserted “following the procedure specified in Section 2.1 A.3.i.ii” between the words “report: and “to the Regional Air Quality Supervisor” in the first sentence.
8	2.1 A.3.i	Added new paragraphs i and j
9	2.1 A.3.i	Redesignated original paragraph i as paragraph k
	2.1 A.4.a	Added title of 40 CFR Part 61 Subpart M (National Emission Standard for Asbestos)
11	2.1 B.1	Updated section to reflect the most current stipulations for 15A NCAC 02 .0510
12	2.1 B.2.c.iii	Deleted “Within 60 days after achieving the maximum production rate at which the affected facility(s) will be operated, but not later than 180 days after the initial start-up of the affected facility(s),”
13	2.3 A	Replaced (1), (2), and (3) with 1., 2., and 3.
14-24	3	Updated General Conditions to Version 5.3 dated August 21, 2018

No changes are being made to the Title V Equipment Editor at this time.

5. Description of Changes and Estimated Emissions

As discussed earlier, this application serves as Step 2 of a two-step significant modification to install a voluntary LFG collection and control system and an LFG-fired flare. These changes were discussed in detail in the previous permit modification review (Application No. 7600336.19A, J. Harris, 4/28/2020). No other changes are being made to the permit at this time.

Emissions of methane and LFG generation from the Great Oak Landfill were estimated using LandGEM¹, an emissions model developed by EPA for use in estimating air emissions from municipal solid waste landfills. The following assumptions were used in modeling the emissions:

Collection Efficiency (before activating GCCS):	0%
Collection Efficiency (after activating GCCS):	75%
Concentration of NMOC in LFG	595 parts per million volume (ppmv)
Assumed Methane Content of LFG	50%
Selected Decay Rate Constant:	0.04 yr ⁻¹
Selected Ultimate Methane Recovery Rate	3,203.7 ft ³ /ton (100 m ³ /Mg)

The following table displays emission rates projected for the years 2020 through 2026.

¹ U.S. Environmental Protection Agency. Landfill Gas Emissions Model (LandGEM), Version 3.03, 2020.
<https://www.epa.gov/catc/clean-air-technology-center-products#software>

Year	Refuse Disposal Rate (Mg/year)	Refuse in Landfill (Mg)	Methane Generation Rate (m ³ /yr)	LFG Generation Rate (ft ³ /min)	LFG Fugitive Emission Rate (ft ³ /min)
2020	526,167	1,257,810	4,864,689	654	654
2021	526,167	1,783,977	6,778,615	911	228
2022	526,167	2,310,144	8,617,495	1,158	290
2023	526,167	2,836,311	10,384,272	1,395	349
2024	526,167	3,362,478	12,081,772	1,674	406
2025	526,167	3,888,646	13,712,712	1,843	461
2026	526,167	4,414,813	15,279,702	2,053	513

As expected, methane production is projected to increase as the landfill ages, and as additional waste is added to the landfill. However, fugitive LFG emissions are expected to peak in 2020 at a rate of 654 cfm. The GCCS, which has been installed but had not been a permit requirement, is expected to be activated in the year 2021. At that time, fugitive landfill gas emissions will be reduced as they are controlled by the GCCS.

The GCCS is designed to handle a maximum average annual gas flow of 3,500 ft³/min. Using this flow rate, nitrogen oxides (NO_x) and carbon monoxide (CO) emission factors from the manufacturer, and AP-42 emission factors² for particulate matter (PM), and non-methane organic compounds (NMOC), potential emissions for NO_x, CO, PM, and NMOC were estimated, and compared to the criteria pollutant major source threshold of 100 tons/year.

It should be noted that NMOC include volatile organic compounds (VOC) as well as other organic compounds. For the purposes of this review, NMOC will be used as a surrogate for VOC emissions.

NO_x Emissions

NO_x Emission Factor: 0.068 lbs NO_x per million British thermal units (MMBtu)
LFG Flow Rate: 3,500 ft³/min

If there is 1,012 Btu per ft³ of methane (CH₄), and every ft³ of LFG has 0.50 ft³ of CH₄, each ft³ of LFG contains

$$\frac{1,012 \text{ Btu}}{\text{ft}^3 \text{ CH}_4} * \frac{0.50 \text{ ft}^3 \text{ CH}_4}{\text{ft}^3 \text{ LFG}} = 506 \text{ Btu/ft}^3 \text{ LFG}$$

$$\text{NO}_x = \frac{0.068 \text{ lb NO}_x}{1 \text{ E}+06 \text{ Btu}} * \frac{3,500 \text{ ft}^3 \text{ LFG}}{\text{min}} * \frac{506 \text{ Btu}}{\text{ft}^3 \text{ LFG}} * \frac{525,600 \text{ min}}{\text{yr}} * \frac{\text{ton}}{2,000 \text{ lb}} = \underline{\underline{31.65 \text{ tons/yr NO}_x}}$$

CO Emissions

CO Emission Factor: 0.31 lbs CO per million British thermal units (MMBtu)
LFG Flow Rate: 3,500 ft³/min

Using 506 Btu/ft³ LFG (as computed above for NO_x),

² U.S. Environmental Protection Agency. AP-42, Fifth Edition, Volume I Chapter 2: Solid Waste Disposal; Section 2.4, Municipal Solid Waste Landfills, Final Section - Supplement E, November 1998.

$$\text{CO} = \frac{0.31 \text{ lb NO}_x}{1 \text{ E}+06 \text{ Btu}} * \frac{3,500 \text{ ft}^3 \text{ LFG}}{\text{min}} * \frac{506 \text{ Btu}}{\text{ft}^3 \text{ LFG}} * \frac{525,600 \text{ min}}{\text{yr}} * \frac{\text{ton}}{2,000 \text{ lb}} = \underline{\underline{144.28 \text{ tons/yr CO}}}$$

PM Emissions

PM₁₀ Emission Factor: 17 lbs per million dry standard cubic feet (dscf) of CH₄
LFG Flow Rate: 3,500 ft³/min

Note a in AP-42, Section 2.4, Table 2.4-5 says to divide lb/10⁶ dscf by 16,700 to obtain lb/hr per dry standard cubic feet per minute (dscfm). Using this conversion factor, the PM₁₀ emission factor becomes:

$$(17 \text{ lb}/10^6 \text{ ft}^3) / 16700 = 0.001 \text{ lb/hr} - \text{dscfm}$$

Using 506 Btu/ft³ LFG (as computed above for NO_x),

$$\text{PM}_{10} = \frac{0.001 \text{ lb} - \text{min}}{\text{hr} - \text{dscf}} * \frac{3,500 \text{ ft}^3 \text{ LFG}}{\text{min}} * \frac{0.50}{\text{yr}} * \frac{8,760 \text{ hr}}{2,000 \text{ lb}} = \underline{\underline{7.80 \text{ ton/yr PM}_{10}}}$$

NMOC Emissions

The flow rate of NMOC emissions is the flow rate of the landfill gas (3,500 ft³/min) times the concentration of NMOC in the landfill gas (595 ppmv).

$$Q_{\text{NMOC}} = \frac{3,500 \text{ ft}^3}{\text{min}} * \frac{595}{10^6} * \frac{\text{m}^3}{35.3198 \text{ ft}^3} * \frac{525,600 \text{ min}}{\text{yr}} = 30,990.4 \text{ m}^3/\text{yr}$$

Equation (4) from AP-42, Section 2.4 is then used to convert this to annual mass of potential NMOC emissions, using the molecular weight of NMOC as hexane (86.18 g/gmole),

$$M_{\text{NMOC}} = \frac{30,990.4 \text{ m}^3/\text{yr} * 86.18 \text{ g/gmole} * 1 \text{ atm}}{(8.205 \times 10^{-5} \text{ m}^3 - \text{atm/gmol} - \text{K})(1,000 \text{ g/kg})(273 + 77\text{K})} = \underline{\underline{109,227.95 \text{ kg/yr}}}$$

$$\text{or } 109,227.95 \text{ kg/yr} * 2.2 \text{ lb/kg} * \text{ton}/2,000 \text{ lb} = \underline{\underline{120.15 \text{ ton/yr NMOC}}}$$

Using equation (5) from AP-42, Section 2.4 is then used to determine the actual mass emissions, assuming 98% NMOC removal efficiency from the flare.

$$\text{CM}_{\text{NMOC}} = [109,227.95 \text{ kg/yr} * (1 - 100/100)] + [109,227.95 \text{ kg/yr} * (100/100) * (1 - 98/100)] \\ = 2,184.56 \text{ kg/yr}$$

$$\text{or } 2,184.56 \text{ kg/yr} * 2.2 \text{ lb/kg} * \text{ton}/2,000 \text{ lb} = \underline{\underline{2.40 \text{ ton/yr NMOC}}}$$

Based on these emission estimates, Great Oaks Landfill would be a minor source for all criteria pollutants, with the exception of VOC (as NMOC). Controlling the emissions with the GCCS is expected to significantly reduce VOC emissions. Continued compliance is expected.

In 2020, the year of highest projected fugitive emissions, methane production is estimated to be 4,864,689 m³/yr – which would all be fugitive emissions. Assuming the methane content of the LFG is 50%, then

$$\text{Fugitive LFG Production} = 4,864,689 \text{ m}^3/\text{yr} / 0.5 = 9,729,378 \text{ m}^3/\text{yr}$$

6. Regulatory Review

The facility is subject to the following air quality regulations in addition to the General Conditions:

- 15A NCAC 02D .0510: Particulates from Sand, Gravel, or Crushed Stone Operations
- 15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521: Control of Visible Emissions
- 15A NCAC 02D .0524: New Source Performance Standards
 - 40 CFR Part 60, Subpart OOO (Nonmetallic Mineral Processing Plants)
 - 40 CFR Part 60, Subpart XXX (Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014)
- 15A NCAC 02D .1110: National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 61, Subpart M (National Emission Standard for Asbestos)
- 15A NCAC 02D .1806: Control and Prohibition of Odorous Emissions
- 15A NCAC 02Q .0504: Option for Obtaining Construction and Operation Permit

No changes are being made to the permit conditions as a result of this permit renewal. It should be noted that because the GCCS and flare are being installed voluntarily and the landfill's non-methane organic compound (NMOC) emission rate has not yet reached 34 Mg/yr, the monitoring requirements for these control devices under the New Source Performance Standards (40 CFR 60 Subpart XXX) do not currently apply.

7. National Emission Standards for Hazardous Air Pollutants (NESHAPS): Maximum and/or Generally Achievable Control Technology (MACT/GACT)

The MSW landfill (ID No. ES-01) is subject to 40 CFR 61, Subpart M "National Emission Standard for Asbestos" since the landfill is an active waste disposal site which accepts asbestos-containing waste.

The MSW landfill (ID No. ES-01) is **not** subject to 40 CFR 63, Subpart AAAA "Municipal Solid Waste Landfills." Although the design capacity exceeds 2.5 million Mg and 2.5 million cubic yards, the estimated uncontrolled NMOC emission rate determined using the Tier 2 methodology is below 50 Mg/yr. Additionally, the landfill is not currently, nor is it collocated with, a major source of hazardous air pollutants (HAP).

The portable rock crusher's engine (ID No. IES-6) and mobile truck tippers' engines (ID No. IES-1) are **not** subject to 40 CFR 63, Subpart ZZZZ "Stationary Reciprocating Internal Combustion Engines," since the engines associated with these sources meet the definition of nonroad engines and do not remain in a single location for more than 12 consecutive months and are, therefore, not considered stationary sources.

This permit renewal does not affect the status of this facility with regard to NESHAP. Continued compliance is expected.

8. New Source Performance Standards (NSPS)

The MSW landfill (ID No. ES-01) is subject to 40 CFR 60, Subpart XXX "Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014" since it commenced construction after the applicability date of July 17, 2014. Great Oak Landfill has submitted the required initial design capacity and NMOC emission rate reports.

While the landfill has not yet crossed the 34 Mg/yr NMOC emission rate threshold, noted in the table in permit Section 2.1 A., when it would be required to install a GCCS, Great Oaks Landfill has opted to voluntarily install a GCCS ahead of time. Great Oaks Landfill is still required to submit a GCCS design plan for approval once the 34 Mg/yr NMOC emission rate threshold is reached, and the landfill is continuing to conduct Tier 2 testing as

required. The MSW landfill is **not** subject to 40 CFR 60, Subpart WWW “Municipal Solid Waste Landfills” since the facility is subject to NSPS Subpart XXX, which supersedes NSPS Subpart WWW.

The portable rock crusher (ID No. RC-01) is subject to 40 CFR 60, Subpart OOO “Nonmetallic Mineral Processing Plants,” since it has a capacity greater than 150 tons per hour.

The portable rock crusher’s engine (ID No. IES-6) and mobile truck tippers’ engines (ID No. IES-1) are **not** subject to 40 CFR 60, Subpart IIII “Stationary Compression Ignition Internal Combustion Engines” because these engines are not considered stationary sources. They meet the definition of nonroad engines and do not remain in a single location for more than 12 consecutive months.

This permit renewal does not affect the status of this facility with regard to NSPS. Continued compliance is expected.

9. New Source Review (NSR)/Prevention of Significant Deterioration (PSD)

The potential emissions of criteria pollutants from Great Oaks Landfill do not exceed any PSD permitting thresholds. PSD minor baseline dates have not been triggered in Randolph County.

This permit renewal does not affect the status of this facility with regard to PSD/NSR. Continued compliance is expected.

10. Risk Management Plan Requirements

40 CFR Part 68 requires stationary sources storing more than threshold quantities of regulated substances to develop a risk management plan (RMP), in accordance with Section 112(r) of the Clean Air Act. The RMP lists the potential effects of a chemical accident at the facility, steps the facility is taking to prevent an accident, and emergency response procedures to be followed if an accident should occur.

Great Oaks Landfill is not subject to Section 112(r) because it does not store any of the regulated substances in quantities above the thresholds in the rule. This permit renewal does not affect the 112(r) status of the facility.

10. Compliance Assurance Monitoring (CAM)

Under 40 CFR Part 64, a facility must develop a continuous CAM plan for any pollutant specific unit meeting all of the following criteria:

- It is located at a major source required to obtain a 40 CFR Part 70 or Part 71 permit;
- It is subject to an emission limitation or standard for a regulated air pollutant (and that standard is not exempt under 40 CFR 64.2(a)(1)(b));
- It uses an active control device to comply with that emission limitation or standard; and
- It has a potential pre-control emission rate that equals or exceeds the major source threshold for criteria pollutants or HAPs.

CAM was determined in a preceding permit review to not be applicable because it is subject to NSPS regulations proposed after 1990, which are exempt under 40 CFR 64.2(a)(1)(b). This permit renewal does not affect this status. Continued compliance is expected.

11. Facility-wide Toxics Review

Because the Great Oaks Landfill is subject to 40 CFR Part 61, Subpart M as discussed in Section 7 of this review, it is exempt from toxics permitting under 15A NCAC 02Q .0702(a)(27)(A). As discussed earlier, this

application is Step Two of a two-step modification to install a voluntary landfill GCCS with a 3,500 scfm LFG-fired flare. The modification results in an increase in toxic emissions from the facility.

This emissions increase was discussed in detail in the previous application review (Application No. 7600336.19A, J. Harris, 4/28/2020). In that review, the projected emission rates for toxic air pollutants (TAPs) through 2024 from the facility were compared to the respective toxic air pollutant emission rates (TPERs) established in 15A NCAC 02Q .0711(a). For most of the TAPs emitted from the landfill, the TPERs were not exceeded. For those few TAPs with emissions exceeding the TPERs (acrylonitrile, benzene, hydrogen chloride, hydrogen sulfide, and vinyl chloride), subsequent dispersion modeling indicated that the pollutant concentrations at the property boundary were significantly less than the acceptable ambient levels (AALs) set forth in the Toxic Air Pollution Guidelines (15A NCAC 02D .1104). In addition, the emission rate for methyl mercaptan was projected to be slightly below the TPER using the conservative method for emission rate estimation previously described. However, a 2015 modeling demonstration showed that the concentration at the property boundary was well below the AAL. Since none of the toxic air pollutants evaluated exceed their respective TPERs or AALs, DAQ has determined that there is not an unacceptable risk to human health as a result of this modification.

The potential volume emissions from the landfill surface calculated for the previous application review were based on an LFG generation rate of 9,520,676 m³/yr projected through the year 2024 as determined using LandGEM. The projected emissions for the landfill and flare from the previous permit review are summarized below.

Pollutant	Landfill Surface Emission Rates tons/yr	Flare Emission Rates tons/yr	Total tons/yr
PM (TSP)	-----	7.82	7.82
PM ₁₀	-----	7.82	7.82
PM _{2.5}	-----	7.82	7.82
SO ₂	-----	103.10	103.10
NO _x	-----	31.65	31.65
CO	-----	144.28	144.28
VOC	22.39	2.40	24.79

This assumption concerning the projection year turned out to be an error. In the current Great Oaks landfill renewal application, having the benefit of additional information, the highest fugitive emissions year is projected to be 2020, where the landfill gas generation is estimated to be 9,729,377 m³/yr—only 2.19% higher than the previous estimate. This minor difference in estimates should have little to no effect on toxic emissions from the landfill; in other words, the TPERs for most TAPs emitted will not be exceeded, and for those TAPs exceeding the TPERs, the concentrations at the property boundary will be significantly lower than the AALs.

As discussed in Section 5 of this review, Great Oaks Landfill expects to exceed the 34 Mg/yr NMOC emission rate threshold in 40 CFR 60 Subpart XXX in 2021. At that time, the landfill would be required to submit a GCCS design plan, and to activate the GCCS after approval. Upon GCCS activation, emissions from the landfill would be reduced significantly. Because the GCCS is expected to have a 75% collection efficiency, this would result in a reduction of fugitive LFG emissions to 3,389,307.5 m³/yr (equal to the methane generation. rate in 2021 ×2 ×0.25).

12. Facility Emissions Review

The table in the header page of this review summarizes emissions (after application of required emission controls) from the Great Oaks Landfill from the 2018 and 2019 emission inventories. As shown, VOC is the largest single criteria pollutant emitted, with toluene being the largest single HAP emitted from the facility.

13. Compliance Status

The Great Oaks Landfill was last inspected on March 25, 2020 by Robert Barker of the WRSO. The facility was found to be in violation of 15A NCAC 2Q .0501 "Requirement for a Permit" for installing a rock crusher before obtaining a construction and operation permit. The WRSO issued an NOV to the facility on April 1, 2020. On April 29, 2020, the WRSO issued an addendum to April 1, 2020 to that NOV for failure to conduct a performance test on the rock crusher as required by 40 CFR Part 60, Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants." On December 16, 2020 Great Oaks Landfill was issued civil penalty assessment (File No. DAQ 2020-050) in the amount of \$3,364.00 for this violation.

14. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. Forsyth County Office of Environmental Assistance and Protection is an affected local program. There are no affected states or local programs within 50 miles of the facility.)

15. Other Regulatory Considerations

A permit fee in the amount of \$988.00 was included in Permit Application No. 7600336.20A for Step 2 of the two-step significant permit modification, along with a Professional Engineer's seal. A zoning consistency determination was requested from Randolph County Planning and Zoning in a letter dated May 20, 2020.

16. Recommendations

DAQ has reviewed the permit application for Waste Management of Carolinas, Inc. - Great Oak Landfill located in Randleman, Randolph County to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 10446T04.